CONTENTS VOLUME 57, 1989

Special Issue: Seismoelectromagnetic Effects
Guest Editors: M. Parrot and M. Johnston

Contents vi
Forward viii

Surface measurements of electric and magnetic fields near seismically active regions
Evidence of electro-seismic phenomena
J. Tate (Sausalito, CA, U.S.A.) and W. Daily (Livermore, CA, U.S.A.) 1
Investigations of tectonomagnetic phenomena in China
Z. Zhijia (Beijing, China) 11
Large-scale magnetic field perturbation arising from the 18 May 1980 eruption from Mount St. Helens, Washington
R.J. Mueller and M.J.S. Johnston (Menlo Park, CA, U.S.A.) 23
Observation of low-frequency electromagnetic emissions as precursors to the volcanic eruption at Mt. Mihara during November, 1986
T. Yoshino and I. Tomizawa (Tokyo, Japan) 32
Tomography of seismo-radio wave source regions for predicting imminent earth-quakes
H. Takahashi (Ibaraki, Japan) and K. Takahashi (Tokyo, Japan) 40
Observation and qualitative modelling of some electrotelluric earthquake precursors
K. Meyer (Uppsala, Sweden) and R. Teisseyre (Warsaw, Poland) 45
Review of magnetic and electric field effects near active faults and volcanoes in the U.S.A.
M.J.S. Johnston (Menlo Park, CA, U.S.A.) 47

Ionospheric and magnetospheric perturbations
Study of seismic influence on the ionosphere by super long-wave probing of the Earth-ionosphere waveguide
M.B. Gokhberg, I.L. Gufeld, A.A. Rozhnoy (Grouzinskaya, U.S.S.R.), V.F. Marenko, V.S. Yampolsky (Tukhachevskogo 14, U.S.S.R.) and E.A. Ponomarev (Lermontova, U.S.S.R.) 64
Studies of electromagnetic emission of seismotectonic origin in the Kirghiz S.S.R.
N.N. Nikiforova (Moscow, U.S.S.R.), F.N. Yudakhin and A.M. Toktosopiev (Frunze, U.S.S.R.) . 68
Anomalous characteristics of the middle latitude Es layer before earthquakes
O.A. Alimov, L.N. Roubtsov (Dushanbe, U.S.S.R.), M.B. Gokhberg, E.V. Liperovskaia, I.L. Gufeld and V.A. Liperovsky (Moscow, U.S.S.R.) 76
On the ionospheric effects of asthenospheric earthquakes
M.N. Fatkullin, T.I. Zelenova and A.D. Legenka (Moscow, U.S.S.R.) 82
VLF emissions associated with earthquakes and observed in the ionosphere and the magnetosphere
M. Parrot (Orleans, France) and M.M. Mogilevsky (Moscow, U.S.S.R.) 86
Some statistical results on very low frequency radiowave emissions in the upper ionosphere over earthquake zone
V.I. Larkina, V.V. Migulin, O.A. Molchanov, I.P. Kharkov (Moscow, U.S.S.R.), A.S. Inchin and V.B. Schvetcova (Alma-Alta, U.S.S.R.) 100

Observation by space-borne detectors of electric fields and hydromagnetic waves in the ionosphere over an earthquake centre
V.M. Chmyrev, N.V. Isaev, S.V. Bilichenko (Moscow, U.S.S.R.) and G. Stanev (Moskovska, Bulgaria) 110

Source generation mechanisms
Terrogenic effects in the ionosphere: a review
L.N. Popov, Yu.K. Krakovetzkiy (Tomsk-10, U.S.S.R.), M.B. Gokhberg and V.A. Pilipenko (Moscow, U.S.S.R.) 115
Modelling the connection between earthquake preparation processes and crustal electromagnetic emission
N.I. Gershenzon, M.B. Gokhberg, A.V. Karakin, N.V. Petviashvili and A.L. Rykunov (Moscow, U.S.S.R.) 129
Parametric instability of water drops in an electric field as a possible mechanism for luminous phenomena accompanying earthquakes
A.I. Grigoryev (Yaroslavl, U.S.S.R.), N.I. Gershenzon and M.B. Gokhberg (Moscow, U.S.S.R.) . . 139
Theory of electrokinetic effects occurring at the final stage in the preparation of a tectonic earthquake
I.P. Dobrovolsky, N.I. Gershenzon and M.B. Gokhberg (Moscow, U.S.S.R.) 144

Laboratory Observations
Electromagnetic and acoustic emission associated with rock fracture
I. Yamada, K. Masuda and H. Mizutani (Nagoya, Japan) 157
On the mechanism of seismo-electromagnetic phenomena and their possible role in the electromagnetic radiation during periods of earthquakes, foreshocks and aftershocks
N.G. Khatiashvili and M.E. Perel'man (Tbilisi, U.S.S.R.) 169

Letter Section
Centroid-moment tensor solutions for October–December 1988
A.M. Dziewonski, G. Ekström, J.H. Woodhouse and G. Zwart (Cambridge, MA, U.S.A.) 179

Research Papers
Forecasting large intermediate-depth earthquakes in the South Aegean
G.A. Papadopoulos (Athens, Greece) 192
Great earthquakes and subduction along the Peru trench
S.L. Beck and L.J. Ruff (Ann Arbor, MI, U.S.A.) 199
Estimation of earthquake source parameters of the May 4, 1972 event of the Hellenic arc by the inversion of waveform data
A.A. Kiratzi (Thessaloniki, Greece) and C.A. Langston (University Park, PA, U.S.A.) 225
Moment-tensor solutions estimated using optimal filter theory: global seismicity, 1984–1987
S.A. Sipkin and R.E. Needham (Denver, CO, U.S.A.) 233
Premonitory seismicity patterns in a platform region (Ardennes–Rhenish and Brabant massifs, lower Rhine graben)
M. De Becker (Brussels, Belgium), O. Dmitrieva, V. Keilis-Borok and I. Rotwain (Moscow, U.S.S.R.) 260
Magnetic properties of natural pyrrhotite. II. High- and low-temperature behaviour of J_{rs} and TRM as function of grain size
M.J. Dekkers (Utrecht, The Netherlands) 266

Analysis of scaling in the geomagnetic polarity reversal record
S. Gaffin (New Haven, CT, U.S.A.) 284
Experimental study of pressure dependence of electrical conductivity of olivine at high temperatures
K. Omura, K. Kurita and M. Kumazawa (Tokyo, Japan) 291
Attenuative body wave dispersion at La Cerdanya, eastern Pyrenees
A.M. Correig (Barcelona, Spain) and B.J. Mitchell (St. Louis, MO, U.S.A.) 304
Seismic moment tensors and source depths determined by the simultaneous inversion of body and surface waves
S. Honda and T. Seno (Ibaraki, Japan) 311
Convective thinning of the lithosphere: a model constrained by geoid observations
C. Dalloubeix and L. Fleitout (Paris, France) 330
Effects of core rigidity free oscillations of the Earth: toroidal oscillations
E. Mochizuki (Tokyo, Japan) 344

Book Reviews 348
The Changing Atmosphere by F.S. Rowland and I.S.A. Isaksen (Editors)
Inverse Problem Theory, Methods for Data Fitting and Model Parameter Estimation by A. Tarantola
The Physics of the Planets: their Origin, Evolution and Structure by S.K. Runcorn (Editor)
Proceedings of the Eighteenth Lunar and Planetary Science Conference by G. Ryder (Editor)

Contents of Volume 57 355